IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF NORTH CAROLINA
CHARLOTTE DIVISION
Civil Action No.: 3:18-cv-197-RJC

BRUCE RHYNE and JANICE RHYNE,	)
	)
Plaintiffs,	)
	)
vs.	)
	)
UNITED STATES STEEL CORPORATION, *et al.*,	)
	)
Defendants.	)
	)

PLAINTIFFS' OPPOSITION TO THE JOINT MOTION TO EXCLUDE THE TESTIMONY, OPINIONS, AND REPORT OF DR. ROBERT HERRICK

The Safety-Kleen Systems, Inc. ("Safety-Kleen") and United States Steel Corporation ("US Steel") Joint Motion to Preclude Robert Herrick, CIH (Doc. 201) should be denied because: (1) the ART model is a generally accepted and reliable method for modeling an individual's exposure to benzene (*Milward, infra*); (2) Dr. Herrick properly applied the ART program to model Mr. Rhyne's exposure to benzene from Safety-Kleen parts washing solvent (he used a different method for Liquid Wrench); (3) Dr. Herrick's opinions are supported by ample evidence of record; and (4) Dr. Herrick demonstrated a high degree of intellectual rigor by not blindly adopting another expert's opinions, but rather, conducting an exacting review of the record of his own even where it resulted in opinions that did not ultimately benefit the Plaintiffs' case against certain Defendants.

FACTUAL BACKGROUND

Dr. Herrick is a Certified Industrial Hygienist and Fellow of the American Industrial Hygiene Association. There is no contest that his more than 45 years' experience as an industrial hygienist and lecturer at the Harvard University School of Public Health from 1994-2018 qualify

him to render his opinions in this case. *See Id.*, at 69:23-73:5; *see also* Herrick CV, Ex. 3. His teaching and academic research at Harvard focused on exposure assessment (including the use of ART) and its interface with epidemiology. *Id.*, pp. 69:23-73:5. He was selected as an expert reviewer for a large series of petroleum industry-funded benzene exposure assessment and epidemiology studies in order to provide consulting for the design and conduct of the retrospective exposure assessments. *Id.* at 73:5-74:13, 75:19-76:16.

Of particular important to this case, Dr. Herrick was a coauthor on "Comparison of the near field/far field model and the advanced reach tool (ART) model V1.5: exposure estimates to benzene during parts washing with mineral spirits." *See* Ex. 11 to Defendants' Memo of Law ("LeBlanc") (filed at Doc. 201-11). LeBlanc established that the ART model used by Dr. Herrick is a more accurate tool for modeling Mr. Rhyne's Safety-Kleen benzene exposures than the near field/far field model advocated by Defendants and their expert, John Spencer, CIH.

ARGUMENT

A. The ART Model is a Reliable Method Designed for Assessing Individuals' Exposures and was Reliably Applied by Dr. Herrick.

Dr. Herrick used the ART model for assessing Mr. Rhyne's exposures to benzene from the Safety-Kleen parts washing machine[1] (among other products) and he used the near field/far field model (NF/FF) for examining his exposures to benzene from the raffinate containing version of Liquid Wrench.[2] The NF/FF model used by Dr. Herrick to analyze Mr. Rhyne's exposures to

[1] *See* Dr. Herrick's Expert Report, Doc. 126-4, at 26 ("The ART exposure modeling approach has been applied to parts washing with mineral spirits, and the resulting benzene exposure estimates have been compared to several other sources of measured, and estimated benzene exposures. In the LeBlanc et al. (2018) investigation, the ART 50th percentile TWA exposure estimates were closer to the measured exposure values than the other modeling approaches. The ART modeling approach was therefore considered to be suitable to estimate Mr. Rhyne's benzene exposures while using mineral spirits.").

[2] The ART model criticized in Defendants' joint brief is completely inapplicable to US Steel.

Liquid Wrench is the exact same exposure model used by ***moving Defendants' own*** exposure expert, Dr. Spencer. Defendants do not criticize that methodology. [3]

1. The ART Model is Properly Applied to Assess An Individual's Benzene Exposures.

The ART model is a generally accepted model for performing exposure assessments for individuals, as well as groups, which has been subjected to peer review and tested. Defendants argue that the use of the ART model to assess an individual's exposure in the United States is novel and therefore not reliable. The argument is founded on the false premise that the ART model is somehow limited to groups in Europe (instead of individuals in the U.S.) since it was used to assess exposures "across **different workplaces in Europe**"[4]. Def. Br. at 8 (boldface in original).

The validity of the ART model to perform an assessment of an individual's exposure is supported by: (1) case law holding that the ART model passes *Daubert* because it is reliable and appropriate for individual worker exposure assessments, (2) peer-reviewed scientific literature, (3) Dr. Herrick's own extensive experience with the ART model, and (4) Defendants' own citation to study authors who support Plaintiffs. Its efficacy is not lost by crossing national borders.

Case Law -- At least one federal court has performed a *Daubert* analysis of the validity and reliability of using the ART model to assess an individual's exposure to benzene from mineral spirits and found that it passed *Daubert* scrutiny. *Milward v. Acuity Specialty Products Group, Inc*., 969 F. Supp. 2d 101, 108 (D. Mass. 2013), *aff'd sub nom. Milward v. Rust-Oleum Corp*., 820 F.3d 469 (1st Cir. 2016). There, the court ruled on a benzene defendant's *Daubert* motion founded

[3] See Doc. No. 193-2, Dr. Spencer's Report, at pp. 15-16 ("I used the Near-Field, Far-Field (NF-FF) predictive model supported by actual air monitoring data to provide a reasonable worst case estimate of Mr. Rhyne's potential exposure to benzene from using the previously listed products.").

[4] Defendants also argue that the ART model is not "generally accepted in the relevant scientific community for individual retrospective exposure assessments" (Doc. 201 p. 10), as opposed to a group of individuals or facilities. It is unclear whether Defendants are attempting to exclude the continent of Europe from the scientific community with their choice of the word "relevant" scientific community.

on the same criticisms of the ART model presented by Safety-Kleen and U.S. Steel. The *Milward* plaintiff developed AML from exposure to benzene in solvents and paints used in the workplace. His benzene exposure from mineral spirits was modeled with the ART program by Dr. Herrick's colleague at Harvard University, James Stewart, CIH. *Id*. at 105-06. Like Safety-Kleen and US Steel here, the defendants in *Milward* argued that the ART model was developed to model exposures for groups of workers, or workplaces, in Europe and was not an accepted method for modeling exposures sustained by individuals in the United States. The *Milward* defendants cited some of the same articles to criticize the ART model as Safety-Kleen and US Steel cite here. *Id*. at 106-07 (Citing articles). Like Safety-Kleen and US Steel, the *Milward* defendants claimed that the unreliability of the ART model was demonstrated by the fact that it purportedly overestimated the plaintiff's benzene exposure by a factor of 2.92. *Id*. at 107.

The *Milward* court thoroughly reviewed the ART model and its application to assess the exposures. The court rejected the defendants' arguments and found the ART model to be a reliable method for assessing a worker's exposure to benzene from mineral spirits:

> I thus find Stewart's exposure assessment using the ART admissible under Rule 702. The ART is peer-tested and produces fairly reliable exposure estimates. Concerns about over-estimation are apparently present in many exposure models, and individual assessment without actual exposure data may be particularly difficult. But these are concerns going to weight rather than admissibility; they call for closer scrutiny by the factfinder as to estimated input parameters and adjustment of the resulting exposure estimate as necessary, but do not require exclusion of the evidence altogether.

Id. at 108.

Literature -- The ART model's use to assess an individual's exposure in the United States is the subject of peer-reviewed scientific articles. One recent publication concluded that "**ART**

was generally found to be the most accurate and precise model, with a medium level of conservatism."[5]

A 2017 study evaluated the accuracy and the robustness of different exposure models including ART, comparing measured data in occupational exposure scenarios involving the use of organic solvent and pesticides. In this study, ART was found to be the most accurate model among others, even if the model tended to underestimate exposure to pesticides. ART was the most accurate regarding organic solvent exposure scenarios.[6]

Similar results were reported in a 2018 paper that evaluated the performance of three models, one of which was ART, comparing model estimates and exposure measurements for solvent cleaning tasks. In this study, ART was found to be the most accurate and precise model.[7]

In 2013, scholars evaluated the performance of the ART model in occupational scenarios. The model estimates aligned with experimental results, thus proving its suitability as a model.[8]

Herrick's experience -- Dr. Herrick himself has extensively used the ART model to assess individuals' exposures, including in the context of a series of benzene epidemiology and benzene exposure studies conducted by a consortium of oil companies in China. Herrick Decl. 10, Ex. 1. He has also taught students at the Harvard University School of Public Health to use the program

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[5] Spinazzè, A., How to obtain a reliable estimate of occupational exposure? Review and discussion of models' reliability, Int. J. Environ. Res. Public Health 2019, 16, 2764 (From a total of 21 studies on external validation, sensitivity and robustness, the authors concluded that "ART was generally found to be the most accurate and precise model, with a medium level of conservatism."),

[6] Spinazzè, A. Accuracy Evaluation of Three Modelling Tools for Occupational Exposure Assessment. Ann. Work. Expo. Health 2017, 61, 284–298. https://www.ncbi.nlm.nih.gov/pubmed/28355416. See the abstract, noting that "ART was the most accurate model."

[7] Lee, S. Comparison of Quantitative Exposure Models for Occupational Exposure to Organic Solvents in Korea. Ann. Work Expo. Health 2018, 63, 197–217. "We found ART to be the most accurate model …. Therefore, our findings suggest that these European models can be used to predict occupational exposure to solvents in Korea."

[8] Hofstetter, E, Evaluation of recommended reach exposure modeling tools and near-field, far-field model in assessing occupational exposure to toluene from spray paint. Ann. Occup. Hyg. 2013, 57, 210-220. "The higher tiered Advanced REACH Tool and NF-FF models showed greater concordance with experimental results... In conclusion, the Tier 1 and 2 exposure modeling tools performed as expected for the simulated exposure scenario, providing relatively accurate, though conservative, estimates according to the level of detail and precision accounted for in each model."

in this manner. Herrick Decl. ¶16. Federal courts consider an expert's professional experience implementing a method to be sufficient, in and of itself, to establish the method's reliability. *McCullock v. H.B. Fuller Co.*, 61 F.3d 1038, 1043 (2d Cir. 1995) (on this basis affirming district court's admission of medical expert testimony despite the fact that the expert "could not point to a single piece of medical literature" that specifically supported opinion).

Dr. Herrick explains that "the ART model is actually a more modern advancement of the near field/far field model that has long been used by the industrial hygiene community to assess worker exposures." Herrick Decl. ¶10. The ART model is founded in an approach to exposure modeling that was applied in a series of benzene exposure industrial hygiene and epidemiology studies conducted by a consortium of oil companies for the very purpose of modeling individual worker exposures. Herrick Decl. ¶10. These studies have collectively been referred to as the Shanghai Health Study. Herrick Decl. ¶10.

Numerous investigators have conducted side-by-side comparisons of the performance of ART and other exposure assessment tools, and found ART to be superior, including for assessing an individual's exposures to benzene:

> ART results were also found to compare well with exposures measured on individuals, especially for organic vapors (such as benzene) [citing Savic N, et al., (2017)]. In a comparison of ART and two other modeling tools with measured exposure levels, ART was found to be the most accurate model, especially for organic solvents (such as benzene) [citing Spinazzè A, (2017)]. A comparison of ART with exposures measured over 7 types of industries found that ART tended to underestimate exposures to liquids by an average of about 0.5 mg/m3 [citing Landberg HE, (2017)].

Herrick Decl. ¶17.

Defendants' own experts -- The papers cited by Defendants and their expert Spencer include various study co-authors who in other work actually support Plaintiffs. For example, Defendants cite the McNally paper from 2014. (Def. Br. pp. 7-8, paper filed at Doc. 201-9). One

of the co-authors was John Cherrie. In another, more recent paper from 2020, Cherrie and his co-authors agree that ART is "extensively documented in peer-reviewed scientific papers and associate technical reports" and summarize recent studies that "judged Stoffenmanager® to be the most robust model for REACH and ART to be the most accurate and precise model."[9] Likewise, Spencer cites a 2017 paper by Landberg. (Doc. 193-2, p. 37). But Landberg has published more recent papers vouching for the ART model. A 2019 study investigated different risk assessment approaches for exposure to chemicals in seven kinds of industries. For relevant outcomes, the ART measured exposure exceeded the estimates in only 3% of the cases considered.[10]

Defendants quote the Koivisto (2019) statement that "'[p]roperly applied physical mass-balance models appear to be stronger tools for case-specific exposure assessments' than the use of empirical models such as ART." (Def. Br. p. 8; article is filed as Ex. 10, Doc. 201-10). Essentially, Defendants argue that the near field/far field model is a better method than the ART program.[11] This argument fails as a matter of law and fact.

As to the law, "[t]he mere fact that the plaintiff's experts failed to perform testing in a manner that was satisfactory to the defendants does not compel the conclusion that their opinions do not meet the qualifications for expert testimony." *Stoots v. Werner Co*, No. 7:04CV00531, 2005 WL 3547122, at *5 (W.D. Va. Dec. 28, 2005). "[E]xperts in various fields may rely properly on a

[9] John William Cherrie, Wouter Fransman, Gerardus Antonius Henrikus Heussen, Dorothea Koppisch and Keld Alstrup Jensen, Exposure Models for REACH and Occupational Safety and Health Regulations, Int. J. Environ. Res. Public Health 2020, 17, 383; doi:10.3390/ijerph17020383 (noting that ART model was "extensively documented in peer-reviewed scientific papers and associate technical reports" and that studies "judged Stoffenmanager® to be the most robust model for REACH and ART to be the most accurate and precise model").

[10] Landberg, H.E.; Hedmer, M.; Westberg, H.; Tinnerberg, H. Evaluating the Risk Assessment Approach of the REACH Legislation: A Case Study. Ann. Work Expo. Health 2019, 63, 68-76. *See also* Landberg, H. (2018). The Use of Exposure Models in Assessing Occupational Exposure to Chemicals. Lund: Lund University: Faculty of Medicine, p. 48 ("For ART, only 3 % of the measured exposures exceeded the modelled outcome. This result makes ART the model with highest level of protection, according to our data.").

[11] Plaintiffs do not claim that the near field-far field model is unreliable. The ART model, however, has advantages over the near field-far field model that make it a superior tool for certain applications.

wide variety of sources and may employ a similarly wide choice of methodologies in developing an expert opinion." *Cooper v. Carl A. Nelson & Co.*, 211 F.3d 1008, 1020 (7th Cir. 2000).

Defendants appear to contend that the model used by their expert (the near field/far field, NF/FF model) is more reliable and that the ART model, used by Dr. Herrick for certain products, including Safety-Kleen's parts washing solvent, purportedly overstates exposures. Def. Br. p. 23. This argument was also addressed by the Court in *Milward* when it found that:

> The Hofstetter study, however, found that the model employed by [Defendant's] expert—known as the Near Field, Far Field ("NF–FF") model—also overstated exposure by a factor of 1.96. The study thus reflects the unremarkable proposition that the ART, apparently much like the NF–FF model, is less precise when actual exposure data is unavailable. *Id.* at 10. The absence of actual exposure data is not fatal to the usefulness or reliability of either test. To the contrary, the ability to generate an exposure estimate in the absence of such data is part of the value of the ART to the scientific community. Tielemans, *Advanced REACH Tool*, at 950.

Milward, 969 F. Supp. 2d 101, 107.

As to the facts, Defendants misstate the Koivisto article and ignore the fact that the ART model has actually been proven to be the more accurate method for assessing benzene exposure under the exact facts that apply to this case. Koivisto examined the application of the ART model to *aerosolized* solvents -- a fact made obvious by the paper's title.[12] Safety-Kleen's machine used a *liquid* solvent, not an aerosol. Koivisto is inapplicable on this basis alone.

Directly on point to evaluating the ART model in this case is the LeBlanc (2018) article (Doc. 201-11). When asked at his deposition whether properly applied physical mass-balance models were stronger than ART, Dr. Herrick rejected that claim, and pointed to the LeBlanc article as evidence that the ART model more accurately models benzene exposure from mineral spirits than the near field/far field physical mass-balance model. Herrick dep., 165:1-13, Exhibit 13.

[12] "Source specific exposure and risk assessment for indoor aerosols." Doc. 201-10.

The LeBlanc study authors modeled benzene exposure from a Safety-Kleen style parts washing machine using both the ART 1.5 program[13] and the near field/far field model. They then compared the results to actual air monitoring from the Fedoruk (2003) study to validate the accuracy of both models.[14] The authors concluded that the ART 1.5 program more accurately modeled the benzene exposure than did the near field/far field model.[15]

Defendants mischaracterize the ART model as a rigid tool with pre-programmed exposure scenarios, which can only be used to model exposures for the specific scenarios that already exist within the tool. *See, e.g.*, Doc. 201 at p. 8, citing to the Schinkel (2014)[16] article for the proposition that "ART has a highly particularized and specific utility." This is not true and is contradicted by how Dr. Herrick actually used the program for modeling Mr. Rhyne's exposures. Defendants argue that the ART must pre-programmed settings for benzene exposures from a parts washing machine at a nuclear power plant for it to apply to Mr. Rhyne. Contrary to Defendants' suggestion, the ART model is designed to permit the user to tailor the program to an individual's use of a specific product, in a specific manner in a specific environment.

Dr. Herrick inputted evidence of Mr. Rhyne's specific use of the Safety-Kleen parts washer and the environmental conditions at Duke into the ART model. These parameters included (1) adjusting the model to four separate exposure activities (i.e., scrubbing parts in the liquid, soaking parts, spraying parts with air), (2) the surface area of the parts washing machine, (3) the length of time that Mr. Rhyne used the parts washer during each activity, (4) the liquid temperature, (5) the room size, (6) the ventilation conditions, (7) the presence or absence of engineering controls, (8)

[13] This is the same version of the ART program used by Dr. Herrick.
[14] *See* LeBlanc Study, Doc. 201-11, at 3.
[15] *Id.*, at 6.
[16] The objective of the Schinkel article was not to determine whether the ART model can be used to assess an individual's exposure. Herrick Decl. ¶15.

whether the work was performed indoors or outdoors, and others. Doc. 201-2, Herrick report, Appendix, ART Report -- Benzene from Parts Washing, p. 54 of 94.

Modeling exposure to a specific individual's activities and working environment and the subject product is a far more accurate and precise way to assess exposure.[17] Here the objective is to know what Mr. Rhyne's benzene exposure was from Mr. Rhyne's use of the parts washer. Dr. Herrick's use of the ART program accomplished just that.

2. The ART Model is Generally Accepted for Individual Exposure Assessments.

Numerous scientific articles support the use of the ART model for individual exposure assessments. See studies cited above; *Milward*, 969 F. Supp. 2d at 107.[18] Dr. Herrick explains:

> The allegation that the ART model is inapplicable to exposure assessments such as Mr. Rhyne's benzene exposures is a canard. The scientific basis for using ART in exposure estimation is well-established. A review of the literature (PubMed) shows that as of today there have been 33 peer-reviewed articles published on the development and use of ART, and the number of publications has grown steadily each year signifying its adoption as an exposure assessment tool. Notably, these publications include studies that evaluated the determining accuracy and robustness of ART modeling results by comparison with exposure measurements by NIOSH in US facilities.

Herrick Decl. ¶17, Ex. 1. The United States Environmental Protection Agency ("EPA") lauds the ART model as being among the "best science" of exposure assessment models. In its updated Exposure Factors Handbook, the EPA lists the ART model as among "[l]eading examples of indoor air models…." Herrick Decl. ¶ 13, citing EPA Exposure Factors Handbook, at p. 19-19. In October 2019, the EPA published its Guidelines for Human Exposure Assessment in order to

[17] It is true that the ART model does permit the user to model exposures based on a general type of workplace, i.e., a typical refinery. That function may be useful when attempting to predict exposures to large groups of workers in various refineries when the industrial hygienist does not have details about how specific people used specific products in specific refineries.

[18] "[Defendant] also argues that the ART may be inappropriate for retrospective exposure assessment of a single individual, as opposed to a group of individuals or facilities.... But even a study that Rust-Oleum references to highlight uncertainty in the ART discusses use of the model for individual assessment, provided that the wide variability in exposure between workers is taken into account." *Id.*, referring to Jody Schinkel, et al., Advanced REACH Tool (ART): Calibration of the Mechanistic Model, 13 J. Envt'l Monitoring 1374, 1379 (2011).

"incorporate advances in exposure assessment reflecting the best science currently conducted across the Agency in all offices, programs and regions." Herrick Decl. ¶ 13, citing EPA Guidelines, p. xi.[19] The Guidelines are "to aid exposure scientists in preparing exposure assessments… and conducting epidemiology studies." *Id*. The EPA describes the ART model as an "improved exposure assessment model[]". Herrick Decl. ¶13, quoting Guidelines, p. 21. The EPA does not restrict the use of the ART model to population-wide or workplace-wide analysis.

Defendants argue that the LeBlanc article demonstrates the novel nature of the ART model because it states that it reflects the first time that the model was applied in a peer-reviewed article to assess exposure to benzene from mineral spirits-based parts washing solvent. This is baseless. Simply because the model was not in a peer-reviewed article for that precise product before does not negate its validity. And several studies have applied ART to solvent and benzene exposures. Indeed, the *Milward* court allowed it five years (2013) before the LeBlanc (2018) article.

Defendants cite to the Tielemans (2011) article for the proposition that the ART model is a work in process and not fully developed. (Doc. 201 p. 10). The Tielemans (2011) article is nine years old. As with most technology, the ART program has progressed. Defendants' argument is like saying Apple's iPhones or Microsoft programs are novel and unreliable because the company periodically manufactures new models. Simply because a method evolves and improves with modern technology does not mean it has not been generally accepted.

B. Dr. Herrick's Data Inputs Regarding Exposures Are Supported By The Evidence.

Defendants make a collateral attack on Dr. Herrick's assessment of exposure to unrelated products. (Doc. 201 p. 12). Defendants' disagreements are matters for cross-examination, not *Daubert* exclusion. Defendants argue that Mr. Petty did not assess exposure to CRC 3-36 and this

[19] Available at https://www.epa.gov/sites/production/files/2020-01/documents/guidelines_for_human_exposure_assessment_final2019.pdf.

Court found that there was inadequate evidence of the exposure to the specific CRC product Mr. Rhyne used. Doc. 180 at p. 7.[20] Mr. Petty "couldn't identify the specific [CRC] cleaner that [Mr, Rhyne] used" because the McGuire Approved Chemicals List was not available for Mr. Petty's review when he wrote his report. *See generally* Petty report, Doc. 201-13. The list did not precisely identify what products Mr. Rhyne personally used (nor does Dr. Herrick claim it does). Dr. Herrick concluded that Mr. Rhyne's testimony describing the product allowed him to link his description to the CRC 3-36 product on the list.[21]

Even as they criticize Dr. Herrick because he *did* include information related to CRC's 3-36 product (on the 1992 chemicals list), they insist he made "a gross misrepresentation" because he *did not* include Tap Magic or Spot-Check (also on the list). (Def. Br. at 14-15). There are several types of Tap Magic Cutting Fluid, some without benzene. The chemicals list does not state the exact type used at McGuire. Mr. Rhyne did not provide details on these products, such as the container color. *See* Rhyne dep. p. 103 (Exhibit 4). In any event, Mr. Rhyne testified that he used "very little" of the Spot-Check product. Herrick report p. 35, Doc. 201-2. Dr. Herrick concluded that he did not have sufficient information to determine what type Mr. Rhyne used. This shows that he rigorously scrutinized the record, even if the court disagreed with his conclusion on CRC.

Defendants' argument is completely unrelated to the exposure analysis of their own products. None of this goes against the reliability of Dr. Herrick's scientific methodology. Cross-examine him on these issues at trial is the appropriate remedy.

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[20] Defendant CRC misrepresented that Mr. Rhyne did not work at McGuire in 1992 because he only worked at Catawba. In fact, he worked at more than one site for instance during outages. CRC's claim that Mr. Rhyne worked at Catawba in 1992 and not at McGuire omitted key testimony. In fact Mr. Rhyne testified that from 1985 on, every 18 months he left Catawba to work on outages at McGuire. During each outage he spent 18 to 30 days at the McGuire plant. Bruce Rhyne dep. 94:16-95:10; 292:11-297:15 (Exhibit 4).

[21] Specifically, he testified that, "when I got the Approved Chemical List, ... that was one of the things I looked for, was to see if I could identify a particular CRC material that he used, and, in fact, there was one included in the list … as I look through this, I'm pretty sure I remember that this was the only CRC product that was identified ... in this list. So that's what I did to conclude that that's what he used." Herrick Dep. at pp. 24-26, Doc. 201-3.

The assessment of exposure to benzene from CRC 3-36 in no way changes Dr. Herrick's assessment of exposure from the Safety-Kleen parts washing solvent or from Liquid Wrench. The CRC 3-36 product's contribution to Mr. Rhyne's total exposure was small in comparison to the contribution of the Safety-Kleen parts washer and Liquid Wrench. *See* Herrick report p. 43, Doc. 201-2 (showing relative contributions). Mr. Rhyne's exposure to benzene from the Safety-Kleen solvent and Liquid Wrench individually were far above the exposures that Plaintiffs' causation experts opine are sufficient to cause AML. *See* Dr. Herrick's report, Doc. 201-2, at pp. 41-44; Deposition of Dr. Robert Harrison, Doc. 194-3, at 44:19-45:20. Thus, the added exposure from CRC had no effect upon the experts' causation opinions.

Defendants argue that by not including Spot-Check or Tap Magic exposures, Dr. Herrick inflated their relative portion of the total exposure. Yet their own industrial hygienist, Spencer, cannot opine that either product caused benzene exposure. *See* Spencer report, Doc. 193-2. Mr. Rhyne testified that he used "very little" of the Spotcheck and there is no evidence that the version of the Tap Magic he used contained benzene. *See* Spencer report, Doc. 193-2, p. 3, citing Rhyne depo. Ex. 4, pp. 73-74; *see also* Herrick report, Doc. 201-2, at pp. 30-31.

At best, Defendants have a disagreement with Dr. Herrick's conclusion regarding his input parameters of the two irrelevant unrelated products.[22] There is "no authority rigidly requiring that an expert review all relevant information in a case in order to have his or her testimony admitted into evidence." *SEC v. Johnson*, 525 F. Supp. 2d 70, 75 (D.D.C. 2007). An expert's purported "failure" to consider the factors defense counsel believes important is not a ground for excluding

[22] Safety-Kleen asserts that Dr. Herrick "ignored" self-testing data of their mineral spirits that they produced. (Doc. 201 pp. 17-18). In fact, this was information that Dr. Herrick reviewed and considered, and did not simply summarily "ignore." Herrick report, Doc. 201-2, pp. 24-25 (citing "analysis conducted on a sample of mineral spirits and reported to Safety-Kleen in December 1980"). This information is clearly referenced in his expert report, and for Safety-Kleen to assert otherwise is a falsehood.

his testimony; instead, "it provides subject matter for cross-examination." *Id*. at 76. Absent a link to the reliability of the expert's methodology, Defendant's criticisms are no basis for exclusion. *E.g., Phillips v. Raymond Corp*., 364 F. Supp. 2d 730, 745 (N.D. Ill. 2005) ("[Plaintiff's] quarrels with [expert's] inclusion or rejection of certain factors or calculations (such as grip strength), implicate his conclusions and are thus properly left for exploration through cross-examination.").

C. Dr. Herrick's Opinions on the Benzene Content of Safety-Kleen's Parts Washing Solvent are Reliable and Satisfy *Daubert.*

Defendants fault Dr. Herrick for (1) relying, in part, on the Fedoruk (2003) study as evidence of benzene exposure from Safety-Kleen's parts washing solvent, (2) not relying on Safety-Kleen's limited testing of used solvent that is not specific to Mr. Rhyne's workplace, and (3) not relying on a biased, unpublished NMAS air monitoring study performed by Safety-Kleen's litigation consultant for Safety-Kleen's insurers. Dr. Herrick's exposure assessment conservatively uses a much lower mineral spirits benzene content than what is published in the peer-reviewed literature and by the United States Government. Dr. Herrick also appropriately considered and accounted for the evaporative loss of benzene from mineral spirits.

1. Evidence of the Benzene Content of Mineral Spirits Used By Dr. Herrick.

Safety-Kleen's parts washing solvent started as mineral spirits and was changed through customers' introduction of contaminants that extended system wide. The benzene content of mineral spirits[23] has been extensively investigated, with some reporting ranges in benzene content from 1,000 to 10,000 ppm, while others state that levels have been below 100 ppm since the late 1970s. *See* Herrick report, pp. 24-25. Dr. Herrick *did consider* the one analysis conducted on a sample of mineral spirits by Safety-Kleen in December 1980, in which the laboratory results

[23] Synonyms for mineral spirits include petroleum naphtha, Stoddard solvent, VM&P Naphtha and petroleum distillates.

reported that the benzene content was 0.027 milligrams per milliliter (mg/ml) using a typical density of 825 grams per liter (g/L) for the degreaser, which is converted to 32.7 milligrams per kilograms (mg/kg) or 32.7 ppm by mass for the benzene content of this sample analyzed in 1980. *Id*. However, other sources summarized by Kopstein (2011) maintain that until at least 2000, the benzene content of regular mineral spirits has ranged from 1,000 up to 10,000 ppm. *Id*.

Dr. Herrick's report describes testimony to OSHA by Caliboume D. Smith, Environmental and Training Manager for Du Pont. *Id*. at 25. Mr. Smith stated that there are no benzene-free substitutes for solvents, and that petroleum-naphtha and low flash VM&P characteristically may contain larger amounts of benzene as impurities. *Id*. Some of DuPont's suppliers could only assure that the benzene level was between 0.1 to 0.5% (1,000 to 5,000 ppm) in these solvents. *Id*. Hunting (1995) described Varsol as containing 1% benzene. *Id*. A 1987 Texaco material safety data sheet for mineral spirits reported that it contained 0.01 to 0.09% benzene. *Id*. Another factor in emissions from parts washers is the depletion of the benzene content over time. *Id*. A 2008 study by Williams et al. estimated that the mass of benzene remaining in a parts washer reduced by about two-thirds over a five-day period in which it was used eight hours a day. *Id*. Collectively, these sources provide more comprehensive evidence of the benzene content of mineral spirits.

Defendants' argument that Dr. Herrick chose benzene rather than mineral spirits is meritless. Dr. Herrick is evaluating Mr. Rhyne's exposure to benzene in mineral spirits, not mineral spirits itself. As discussed *supra*, the *Milward* court found modeling for benzene emitted from mineral spirits to be an appropriate and reliable use of the ART model.

In modeling Mr. Rhyne's benzene exposure from use of the parts washer, Dr. Herrick conservatively used the same value of 58 ppm benzene from the LeBlanc et al. paper, which is the same value reported by Fedoruk et al. (2003) as well. Doc. 201-2 at 26-27. On days when Mr.

Rhyne used a parts washer for a period of one hour, his predicted 50th percentile exposure for the period was 7.1 mg/m^3, with an interquartile confidence interval of 3.7 to 14 mg/m^3 (median 2.2 ppm, range 1.2 to 4.4 ppm). *Id*. at 27. Mr. Rhyne used Safety-Kleen parts washers in his high school classes, his work at Setzer's Automotive, and at Duke Power. Id. On days when he used the parts cleaner for a 15-minute period, his predicted benzene exposure for that 15-minute period was 5.2 mg/m^3, with an interquartile confidence interval of 2.7 to 10.0 mg/m^3 (median 1.6 ppm, range 0.8 to 3.1 ppm). Id. The reports of the ART models including input and output values from the models are included in the Appendix to his report. Doc. 201-2.

Dr. Herrick reports that these results are in "good agreement" with published investigations and summaries of benzene exposures from mineral spirits parts washing. *Id*. at 26. The Fedoruk study used a protocol similar to Mr. Rhyne's use, i.e., parts washing, including soaking, spray rinsing, brushing, compressed air spraying and inspecting metal parts cleaned. *Id*. Dr. Herrick used the same value for benzene content of used mineral spirits as did Fedoruk. However, he modeled Mr. Rhyne's exposure at a room temperature of 77 °F, as more representative of his working conditions in North Carolina than the indoor air temperatures of 65 to 68 °F used by Fedoruk. Fedoruk states that the vapor emission rates and associated benzene exposure concentrations to approximately double for every 10 °C (18 °F) increase in temperature. *Id*. Considering this temperature difference, the agreement between Fedoruk's values and the exposure estimated for Mr. Rhyne is very good. *Id*. at 26-27. Further the 2008 Williams paper and 2006 Nicas paper address the evaporative loss of benzene. *Id*. at 25-27. Herrick testified that he incorporated a 50% reduction of the benzene content into his modeling, which actually overestimates benzene loss through evaporation. Herrick dep. p. 252:17-255:8, Doc. 201-3. The benzene depletion issue is also a red herring where Safety-Kleen's representative admits its

customers' use of the parts washing solvent increased the product's benzene content. Breece 1/28/14 dep p. 68:8-21, Ex. 14. Defendants argue that the Fedoruk study reports a benzene content of 9 ppm and claims that Dr. Herrick should have used this benzene content. (Doc. 201 at 17). Defendants fail to tell the Court that the mineral spirits used in the Fedoruk study was "recycled parts washing solvent" sourced from southern California in or around 2003.[24] This is significant because California has unique air quality regulations that require the use of lower benzene content Rule 66 mineral spirits. (Doc. 201-2, p. 25). Rule 66 does not apply to North Carolina.

Defendants point to how the Fedoruk study added benzene to ("spike") the recycled mineral spirits to increase the benzene content to 58 ppm. (Doc. 201, p. 17). Absent is an explanation of why. Fedoruk spiked the recycled mineral spirits to a level of 58 ppm benzene to represent a more realistic benzene content of the product.[25] If 9 ppm benzene was the typical benzene content of Safety-Kleen's parts washing solvent, they would not have added more benzene to raise the level to 58 ppm. Indeed, Safety-Kleen essentially admits that 9 ppm is not a realistic benzene content of its parts washing solvent in North Carolina by pointing to testing from its South Carolina recycling center with higher benzene contents. Doc. 201, p. 18. The mineral spirits were therefore "spiked" for accuracy to national historic norms.

2. The Lexington, South Carolina Test Results are of Limited Relevance.

Safety-Kleen operated a recycling center in Lexington, S.C. that received waste solvents from thousands of customers. There is no evidence that the Lexington, S.C. facility received waste solvent from the Duke facilities where Mr. Rhyne worked. Assuming that Duke's waste did go to

[24] *See* Doc. 201-17, Fedoruk study, abstract (noting the "first simulation was performed with recycled solvent (9 ppm benzene in solvent)"), and p. 765 ("The degreaser exposure studies were conducted in a warehouse facility in the greater Los Angeles area."). The lead author, Marion Fedoruk was formerly employed by Safety-Kleen. It is Safety-Kleen's business to recycle mineral spirits based parts washing solvent.

[25] *See* Doc. 201-17, Fedoruk study, pp. 764-65 (noting that "[t]he purpose of the current study is to examine the benzene emissions and exposure concentrations for workers using or working in the vicinity of a commercial degreaser station supplied with recycled mineral spirits solvent").

Lexington, there is no evidence that any of the test results submitted by Safety-Kleen were tests of solvent from a Duke facility, let alone one those where Mr. Rhyne worked.

Even assuming that the Lexington testing *was* performed on Safety-Kleen waste from the Duke plants Mr. Rhyne worked at, there is no evidence that the solvent was in the same condition as when he used it. Safety-Kleen offers no evidence of how the solvent was handled or much benzene evaporated from the solvent after it left customers' facilities. Safety-Kleen claims that the benzene content of its parts washing solvent is reduced by 50% after five days. Logically, if Safety-Kleen found 12 to 32 ppm benzene in the waste solvent after an unknown number of days passed between collection and testing, the benzene content must have been significantly higher when actually used by the customer. Safety-Kleen admits that customer use of the product altered its composition over time.[26] Safety-Kleen documents demonstrate that it also measured its spent parts washing solvent and found it to contain more than 0.1% benzene.[27]

3. The NMAS Air Monitoring Study Has Little Weight.

Safety-Kleen points to a National Medical Advisory Service study. (Doc. 201, pp. 18-19). The NMAS study was air monitoring conducted for Safety-Kleen's insurance company defending benzene exposure claims.[28] The air monitoring was performed by John Spencer, Safety-Kleen's expert in this and dozens of other benzene cases. The test was biased. Additionally, there is no

[26] Safety-Kleen itself stated that it was "on the verge of losing control" over its solvent stream quality because of contamination over time. SAL SK 6221-6223, Memo, "Solvent Contamination – A Major Problem" (Exhibit 5); SAL SK 07273 (Exhibit 6). Safety-Kleen knew that the addition of gasoline, Liquid Wrench and other solvents with high benzene content to its parts washers likewise increased the benzene content. Safety-Kleen Memo, "Benzene in Fuels," July 7, 1989 (Exhibit 7); James Breece, Ph.D. deposition, dated September 21, 2007, at 264:3-12 (Exhibit 9).

[27] Draft Operational Health Risk Assessment, Safety-Kleen Recycling Center, Sept. 29, 1997 (Exhibit 10).

[28] See NMAS study, Doc. 201-18, p. 1 (study was prepared for Safety-Kleen). NMAS is a for-profit firm, not a government agency or academic nonprofit. The NMAS website reflects that the group markets itself to "[e]mployers and workers' compensation insurance carriers." It provides "litigation support and expert testimony provides our insurance clients with a diverse and defensible array of claims consulting services." See http://www.nmas.com/.

evidence that the testing was intended to represent a typical worker's benzene exposure, as opposed to being substantially influenced by the conditions where the testing was performed.

D. Dr. Herrick Did Properly Apply The ART Model.

Safety-Kleen argues that (1) Dr. Herrick admitted that the ART program does not permit him to model exposure to one product, and (2) he should have modeled exposure to mineral spirits even though the issue in this case is Mr. Rhyne's exposure to benzene. Def. Br. pp. 20-22. Both claims are untrue. The second argument is simply absurd and was rejected by the *Milward* court. Dr. Herrick modeled exposure to benzene because it is the benzene in the mineral spirits that caused Mr. Rhyne's AML. Modeling exposure to mineral spirits, in this case, is simply pointless.[29]

Safety-Kleen then argues that these two alleged, but untrue, errors are what caused Dr. Herrick's modeling of Mr. Rhyne's benzene exposure to be significantly higher than the Fedoruk study's air monitoring. However, the temperature of the solvent in the Fedoruk study was artificially low (63 degrees Fahrenheit), and higher temperature means more exposure. Dr. Herrick opines that the parts washing solvent used by Mr. Rhyne was warmer than the solvent in the Fedoruk study leading to more benzene exposure. Doc. 201-2, p. 26. The Fedoruk study was conducted in a very large building with better ventilation than where Mr. Rhyne worked. Better ventilation can reduce benzene exposures. Mr. Rhyne described poor ventilation conditions where he used the Safety-Kleen parts washer.[30] This led Dr. Herrick to model his exposure with worse ventilation conditions than in the Fedoruk study.[31]

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[29] Safety-Kleen's own expert, John Spencer, CIH, models Mr. Rhyne's benzene exposure from the mineral spirits. When Safety-Kleen's insurance company hired NMAS and John Spencer, CIH to conduct air monitoring on Safety-Kleen parts washers, they monitored benzene exposure, not mineral spirits. Compare Doc. 201-18 (NMAS study, co-signed by Spencer at page 86) and, 193-2 (Spencer expert report in this case).

[30] Doc. 201-2, p. 5 (Herrick report citing where in his deposition "Mr. Rhyne reported that the ventilation in the pipe shop wasn't good particularly during winter and he recalled having to sometimes go outside to take in fresh air because he would have difficulty breathing" and that "time cleaning parts in the Safety-Kleen parts washer in the fab shop").

[31] That the ART program permits the user to tailor a model to such finite detail as solvent temperature and ventilation conditions provides further evidence that the model is properly used to model an individual's benzene exposure.

Defendants assert that "Dr. Herrick ... admits that his use of the European model does not allow him to isolate exposure results by product" which is "troubling" because "his report purports to separate the alleged exposures by product." (Doc. 201, p. 22). Defendants quote only one sentence from Dr. Herrick's answer, intentionally omitting Dr. Herrick's explanation for why he included far field exposures. Dr. Herrick's true answer was that (1) it is possible to use the ART model to isolate the near field exposure (i.e., model solely the Safety-Kleen exposure), but (2) since Mr. Rhyne used the Safety-Kleen in a location where he was also exposed to benzene from products used around him, (3) the truest and most accurate way to assess his exposure was to include the far field sources of benzene as well. Dr. Herrick more accurately modeled exposure from all sources. Include the far field exposure is another example of how the ART model is capable of performing an individualized exposure assessment.

The ART model can be used to model solely the near field exposure or both the near field and the far field. Herrick dep pages, Exhibit 13, pp. 344-46. His Declaration clarifies how the ART model's input functions operate through a set of drop-down menus, allowing its user to select from a range of exposure scenario variables. Herrick Decl. 33, Ex. 1. One can choose a primary source that is within three feet of the worker's head, which is in effect his near field source. One can also choose a secondary source present in the workroom and more than three feet from the worker's head, i.e., a far field source. Finally, one can choose both, which is what Dr. Herrick did in his exposure assessment for Safety-Kleen. Herrick Decl. ¶33. Dr. Herrick testified that it is possible to isolate the Safety-Kleen exposure with ART. However, when Mr. Rhyne used the Safety-Kleen parts washer, he could not rule out that there was also contribution from the far field because others used products around him. Herrick dep. 342:15-343:20, Exhibit 13. Thus, when he modeled Mr. Rhyne's benzene exposures from this activity, he included both the exposures from the parts

washer and the exposures from products used by others more than three feet from Mr. Rhyne, i.e., the far field. *Id.* at 343:21-344:7. Dr. Herrick's modeling was a good estimate of Mr. Rhyne's exposure to benzene from the Safety-Kleen parts washing machine. Herrick dep. Ex. 13 345:8-15. Use of products in the far field typically contribute only 15% of the exposure.[32] Herrick Decl. ¶34. The fact that Defendants disagree with Dr. Herrick's input parameters do not render his opinions inadmissible. *See Milward, supra,* at 107-08 (questions about the proper input parameters go to weight not admissibility). And it is settled that "an exact quantitative level of exposure is not always necessary to establish causation." Doc. 180 at p. 6. Thus, it is not necessary for Dr. Herrick to provide a precise quantification of the Safety-Kleen benzene exposure. *See Lohrmann v. Pittsburgh Corning Corp.*, 782 F.2d 1156, 1162 (4th Cir. 1986); *Jones v. Owens-Corning Fiberglas Corp*., 69 F.3d 712, 716 (4th Cir. 1995). It was not necessary for the Plaintiffs' experts to have a precise exposure quantified in order to reach their opinions. Indeed, exposure well below the benzene air concentrations specific to Safety-Kleen's parts washer, e.g., 0.85 ppm,[33] can cause AML. *See* Gore report, Doc. 126-9, p. 16 ("as with benzene-associated risk for leukemia, there is no clear evidence of a threshold below which benzene does not cause hematotoxicity in humans."); Infante report, Doc. 128-3, pp. 33 ("exposure intensity of as little as 0.8-1.56 ppm demonstrated a nearly 7-fold elevation in the relative risk of leukemia that was statistically significant.").

E. Dr. Herrick Did Validate His Model Results.

Defendants again distort Dr. Herrick's testimony to claim that "Dr. Herrick also failed to validate his results" and "Defendants' expert, Dr. Spencer, did in fact validate his results" and that

[32] Secondary/far field sources of benzene exposure were small; for example when Mr. Rhyne used the Safety-Klee in the pipe shop for 2 hours, his average benzene exposure was 1.0 ppm (3.2 mg/m3) when the primary and secondary sources were included. If the model was restricted to benzene exposure from the Safety-Kleen in his near field, Mr. Rhyne's exposure would have been 0.85 ppm (2.7 mg/m3). The difference is about 15%. Herrick Decl. ¶35, Ex. 1.

[33] Dr. Herrick's Declaration explains that Mr. Rhyne's Safety-Kleen specific exposure during the use of the parts washer in the pipe fabrication shop was 0.85 ppm (2.7 mg/m3). Herrick Decl. ¶35.

this warrants preclusion of Dr. Herrick's opinions. Def. Br. pp. 23-24. This is inaccurate. With regard to validation, Dr. Herrick explicitly states in his expert report:

> ***The reports of the ART models including input and output values from the models are included in the Appendix. These results are in good agreement with published investigations and summaries of benzene exposures from mineral spirits parts washing***.… Considering this temperature difference, the agreement between Fedoruk et al. values and the exposure estimated for Mr. Rhyne is very good.

Herrick Report, at pp. 25-27 (emphasis added).

During his deposition Dr. Herrick explained that: "Well, like any of these model predictions, I didn't formally validate the result. I think we talked about this this morning. I don't really consider that... anyone really 'validates' them in the strictest sense. **About the closest, you know, that I would say we've done is that LeBlanc paper, where we tried to evaluate how well the results compared with each other**."[34] The testimony that Dr. Herrick referred to from "th[e] morning" of his deposition, was:

> Well, 'validation's' an interesting term. You know, it, sort of, implies that you - - you know the ultimate truth and you compare your model or your measurement against that, you know, knowable truth. So I would say, you know, on that basis, really, none of these models have been formally validated. I think a better term to apply is that their - - their performance has been evaluated. I think that's a better way to put it than saying it's validated.[35]

See also, Herrick Decl. ¶27, Ex. 1.

The common approach for "validation" is to compare previously measured exposures from other studies with the results of current modeling. Herrick Decl. ¶29. Dr. Herrick compared his exposure analysis of Mr. Rhyne to the Fedoruk study and found it to be in good agreement. The LeBlanc (2018) study discussed above is a peer reviewed validation of the ART model in this precise application. (Doc. 201-11). Unlike Mr. Spencer grading his own homework, Dr. Herrick's

[34] *See* Doc. 201-3, p. 255:9-21.
[35] *See* Doc. 201-3 p. 88:3-15.

model was subjected to scrutiny by a group of independent anonymous scientists. Mr. Spencer found 0.038 ppm benzene measured in the use of Liquid Wrench (a figure taken from the Williams study) compared to 0.12 ppm from his own modeling, was, as he characterized it, in "good agreement." Mr. Spencer's modeled benzene exposures were 300% different than the Williams Liquid Wrench air monitoring data he used as a benchmark. Herrick Decl. ¶29. When Dr. Herrick's ART model was compared to the Fedoruk benzene air monitoring, the modeled results were only 15% different then the measured benzene air concentration. *Id*. Thus, Dr. Herrick's model is not only validated, but far more accurate than the defense expert's model.

F. Mr. Rhyne's Use Of Raffinate Liquid Wrench Is Supported By Ample Evidence.

Defendants' argument omits direct and circumstantial evidence that Mr. Rhyne was exposed to the raffinate version of Liquid Wrench into January 1979. Much of this evidence was previously presented at summary judgment and the Court in ruling on those motions rejected Defendants' contentions of no exposure. Docs. 152, 180. The Raffinate version of Liquid Wrench contained between 3 and 30% benzene. There is no dispute that benzene smells sweet. **Mr. Rhyne testified that the Liquid Wrench he used at Duke smelled sweet through 1979**.[36] (Exhibit 4), Bruce Rhyne Dep. pp. 250:5-251:15 ("And back when I used it in the shop down at the pipe fab shop, it had a real strong, sweet smell to it….***Any time after the shop and after the eighties,*** I was probably more ventilated than I was down at the shop. ***So I just don't remember the sweet -- it had like a strong, sweet smell to it. I don't remember that"*** and ***I don't remember the sweetness -- the same smell in the eighty time frame.***").

[36] *See* Herrick Report, Doc. 201-2 at 22 ("I considered that Mr. Rhyne used Liquid Wrench from the existing supply until the end of 1978. The duration of his use in the Pipe Fab Shop therefore was from July 1976 until January 1979, a 2.5-year period.").

Direct evidence also comes from the testimony of former Radiator Specialty Co. employee James Wells. Mr. Wells testified that all Liquid Wrench containers that were eight ounces in size or greater contained only the Raffinate formula from 1972 through 1979. James Wells 11/6/2008 dep p. 130:21-131:8 (Exhibit 12). There is also ample circumstantial evidence to support that the Raffinate exposures continued into January 1979. The last shipment of raffinate was delivered from US Steel to Radiator Specialty Co. by April of 1978. Radiator Specialty continued to use US Steel's Raffinate until the supply ran out. Dr. Herrick explains in his report that, "[a] memorandum from Jim Wells[37] dated March 30, 1978, reports that the benzene-containing Liquid Wrench has been replaced, and the existing supply of raffinate will be exhausted by the end of April 1978."[38] There is no documentation establishing when Radiator Specialty last sold the product.

Radiator Specialty never issued a recall of the Raffinate version.[39] Thus, even when Radiator Specialty stopped shipping the Raffinate Liquid Wrench from its factory, the product was already in circulation and remaining in circulation after April, 1978 as it made its way through the chain of distribution.[40] N.C.P.I. Civil 101.45. (Circumstantial evidence is given equal weight as direct evidence.) Dr. Herrick testified that this was one of the reasons for opining that Mr. Rhyne was exposed to the Raffinate version of Liquid Wrench through January 1979. Dep. of Robert Herrick, Doc. 201-3, at 167:15-168:6. Notably, there is no evidence to refute Dr. Herrick's opinion.

CONCLUSION

The Joint Motion to Exclude Dr. Herrick should be denied.

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[37] Jim Wells was an employee of Radiator Specialty Co.

[38] *See* Herrick report, Doc. 201-2 at 20.

[39] See Herrick report, Doc. 201-2 at 22 ("As there is no indication that the benzene continuing version of Liquid Wrench was recalled, I considered the Mr. Rhyne used Liquid Wrench from the existing supply until the end of 1978.")

[40] We see this happen every day. When one goes to a grocery store and buys a jar of pickles, there is typically stamped on the jar a "best if sold buy" date. The reason is that manufacturers and retailers realize that product will remain in the chain of distribution and on store shelves for long periods of time after it leaves the manufacturer's facility.

Respectfully Submitted,

LOCKS LAW FIRM

Dated: April 22, 2020

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Appendix of Exhibits:
Exhibit 1 - Declaration of Robert Herrick
Exhibit 2 - Robert Herrick Dep. 9.23.19 in Howell
Exhibit 3 - Herrick CV
Exhibit 4 - Bruce Rhyne Deposition Pages
Exhibit 5 - Sal Sk 6221-6223
Exhibit 6 - Sal Sk 07273
Exhibit 7 - Benzene in Fuels Memo
Exhibit 8 - Sal Sk 5678
Exhibit 9 - James Breece Dep 9.21.2007 Pages
Exhibit 10 - Operation Health and Risk Assessment Memo
Exhibit 11 - SK 4/1/1992 Memorandum
Exhibit 12 - James Wells Vol. 2, 11/6/2008 Pages
Exhibit 13 - Dr. Herrick Deposition Pages

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true copy of the foregoing was served by e-filing via the Western District of North Carolina's e-Filing Portal to all counsel of record on this date, Tuesday, April 22, 2020

Respectfully submitted,

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